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AUTHOR	Baird, Bill; McClary, Susan
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ABSTRACT

This paper presents a project description of efforts to improve preservice teacher education programs. The project focuses on two aspects. The first aspect probes Auburn Junior High School eighth-grade students and Auburn University preservice teachers, while the second probes Auburn Junior High School faculty and Auburn University faculty. The necessity of starting professional development before certification as a teacher is advocated. Two interdependent timelines of the project are provided. (YDS)

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ED 443 686

INTEGRATED SCIENCE AND MATH FOR JUNIOR HIGH TEACHER PREPARATION: STAFF DEVELOPMENT AS A CONTINUAL PROCESS

Bill Baird, Auburn University
Susan McClary, Auburn Junior High School

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Background

During June of 1997 teams of three representatives from middle school environments were invited to Colorado Springs, where they participated in one week of observation and planning of an integrated approach to science teaching and professional development (ISTEP) with funding from the National Science Foundation under the leadership of Dr. Paul Kuerbis of Colorado College. Our team from Auburn Junior High School consisted of an eighth grade teacher, the school principal, and a university science teacher educator. Susan McClary is the mathematics teacher and leader of a faculty team of four consisting of science, mathematics, social studies and English disciplines. Charles Tarver, the principal, is a former science teacher who believes in the integrated approach to junior high and middle school teaching and supports faculty efforts in this direction. Bill Baird is a professor of science education at Auburn University, and has been bringing his preservice teachers to AJHS for three years to offer them classroom teaching opportunities in a constructivist environment that uses a theme approach to integrating science with other subjects. The junior high school is located three blocks from the university campus, and serves about 800 students in grades seven and eight with about 50 faculty. Auburn

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University is a land-grant institution serving about 22,000 students, of whom around 40 per year receive preparation for the Alabama secondary science teaching credential. Similar numbers of students are prepared each year for an Alabama teaching license in secondary English, mathematics, and social studies.

In addition to the week at Colorado College, each of the ten teams that came to Colorado Springs received a $6,000 grant to carry on its work at the local level. In this paper we will describe our progress toward professional development of the teaching faculty at AJHS, our efforts to expand this program laterally to other preservice programs at the university, our efforts to expand vertically into sixth and seventh grades in the Auburn City Schools, and our plans to use funds provided by both Auburn City Schools and the NSF grant to achieve our future goals.

Our Goals

The targets of the project are two-fold. The first target combines Auburn Junior High School eighth grade students and Auburn University preservice students. The second group consists of AJHS faculty and Auburn University faculty.

For AJHS students, our goals are:

1. improve student content knowledge;

2. experience the interdependency of four different discipline areas;

3. become more inquisitive, active learners;

4. achieve better self-esteem and positive attitudes towards learning.

For the AU preservice students, our goals are:

1. to understand how middle school students interact in the classroom;

2. to understand how middle school students respond to different teaching techniques;

3. to gain experience in classroom teaching under the guidance of experienced teachers;

4. to practice teaching in their own discipline and other subject areas;

5. to gain experience in planning thematic units and understanding how a teaching team functions.

For the AJHS faculty, our goals are:

1. to achieve better team relationships and planning skills;

2. to experience different teaching techniques from the AU faculty and students;

3. to expand the available resource pool of manpower, ideas, and equipment for classroom teaching.

For the AU faculty, our goals are:

1. to obtain better field experiences for AU preservice teachers in local schools under model teachers;
2. to access demonstration classrooms for constructivist, integrated teaching;
3. to develop a better working relationship with Auburn City Schools;
4. to share responsibility for the preparation of future teachers with area teachers;
5. to explore problems and solutions for the above goals.

Timelines

We have two interdependent timelines. One is for the AU faculty and preservice students, who are on a quarter system and taking a single, three-hour methods course. The other is for AJHS faculty and students, who begin school in late August and end in early June. These two timelines are interleaved, so that critical tasks can be scheduled by both groups for the same day on the calendar. The timelines below (see Figure 1) show duration and spacing of critical events by both groups.

Figure 1

AJHS faculty and students: {five class days per week with five teaching periods per day of 55 minutes each; N~120-150 eighth grade students per team of four faculty members plus one resource teacher per team; single, common, two-hour planning period for each team}

week of July 1st – McClary and Baird meet with Auburn City Schools Curriculum Director and AJHS Principal (1) to plan faculty retreat for the AJHS teams, (2) to inform them of what occurred at the ISTEP Institute in Colorado Springs, (3) to explain changes in the original proposal, and (4) to request matching funds for faculty release time and expenses for the faculty retreat.

week of July 9th – plan faculty retreat with Baird, McClary, AJHS Principal, and Auburn City Schools Curriculum Director. Invitations sent to 15 eighth grade AJHS teachers, ACS Superintendent, Auburn City Schools Curriculum Director, and AJHS administrators, and methods faculty of Auburn University from each of the four discipline areas.

Aug. 7th & 8th – faculty retreat for team building, goal setting, planning for school goals in our proposal.

Aug. 18-23 – Team 5 curriculum planning and unit planning

Aug. 24th – beginning of school year

The three eighth grade faculty teams at AJHS (15 teachers) participated in a retreat at a state park in early August, about two weeks prior to the opening of school. They were joined by seventh grade faculty who are not yet involved in multidisciplinary teaching, and observers from the sixth grade middle school faculty. The principals of both schools, the city superintendent, assistant superintendent, and former state superintendent attended. The success of the first retreat resulted in a second one two months later designed to bring sixth and seventh grade teachers to a common perception of teaming, and middle school philosophy. Additionally, the superintendent purchased copies of The Exemplary Middle School by William M. Alexander and Paul S. George (1981, Holt, Rinehart and Winston) and two other middle school resource books for all city 6th, 7th, and 8th grade teachers. For the 1998-99 school year the city will reorganize into two middle schools housing 6th, 7th and 8th grades, with faculty split equally between the schools. All faculty are being prepared for a new approach to teaching.

AU faculty and students will meet for two class meetings per week over ten weeks. Figure 2 below shows our plan for the nineteen meetings with approximately twenty-four preservice teachers.

Figure 2

Class Meeting #2 – Introduce the AJHS connection as part of field experience requirements of the class. Especially tutoring of 8th graders after school as start-up for later classroom encounters. Set dates for classroom teaching episodes.

Class Meeting #4 – First 1-hour observation of AJHS Team 5 teachers. This is done in six groups of 4 AU students, who may observe different subjects being taught. Followed by 1-hour debriefing with entire Team 5 faculty at AJHS.

Class Meeting #5 – Second 1-hour observation of AJHS Team 5 teachers done in groups of 4 AU students, who observe different teachers this time. Followed by debriefing.

Class Meeting #6 – Making meaning from our observations. What was happening with students? With teachers? What outcomes? What did you understand? AJHS science teacher visits AU class to help us understand the environment we observed.

Class Meeting #10 – First planning session with AJHS teachers in Team 5. How topics will be presented and taught. Dates and schedules AU students to visit and team teach.

Class Meeting #13 – Begin teaching by AU students in AJHS classrooms. Each two-member team will be responsible for at least one class, which will be video taped with feedback provided to the novice teachers by AJHS staff and AU supervisor.

Class Meeting #18 – Complete last teaching by AU students. Discuss outcomes and set goals.

Later we expand this model by following additional team leaders on AJHS staff and AU College of Education faculty so they will be ready to replicate the above stages with their own students.

Budget

The grant funds from Colorado ISTEP have been placed in an account at AJHS under the control of the principal and teachers there. To date all funds have been matched dollar for dollar by moneys from Auburn City Schools. Thus, the first faculty retreat in August actually cost about $3,000, but consumed only $1,500 from the ISTEP budget. Funds are allocated for faculty release time, three academic year faculty workshops on interdisciplinary teaching, supplies, and reference books. Much of the release time funds will be used to provide faculty time to "shadow" other teachers who serve as models for interdisciplinary teaming. Plans are for continued cost sharing between the city schools and the ISTEP grant.

Links with Preservice Teachers

AU preservice students plan and rehearse these lessons and present them under the watchful eyes of experienced teachers. This serves to promote reflective practice among the "teachers-to-be" while bringing special equipment and ideas for AJHS faculty. Providing future teachers with this experience before their internship helps them (a) prepare for teaming with other teachers, (b)

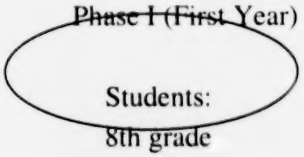
practice teaching in a constructivist environment, and (c) obtain valuable feedback from experienced teachers who critique their teaching skills.

Summary

We believe that professional development should begin before teachers are certified. By starting our efforts at the preservice level, we hope to convince future teachers of the value of collaborative relationships with other teachers and the university community. We will foster better working relationships between university faculty and local schools by providing a needed service and professional development for inservice teachers as part of this joint effort. All participants gain from the planned collaborative.

The faculties of both institutions benefit from sharing resources and personnel. The eighth grade students gain by having a lower student-teacher ratio and through improved teaching techniques in the classroom. The preservice teachers gain by having mentors who are experienced classroom teachers. Discipline faculty at the university will be invited to join this project early. Figure 3 shows the initial phase of our project, involving 8th grade only and science teachers only.

Figure 3



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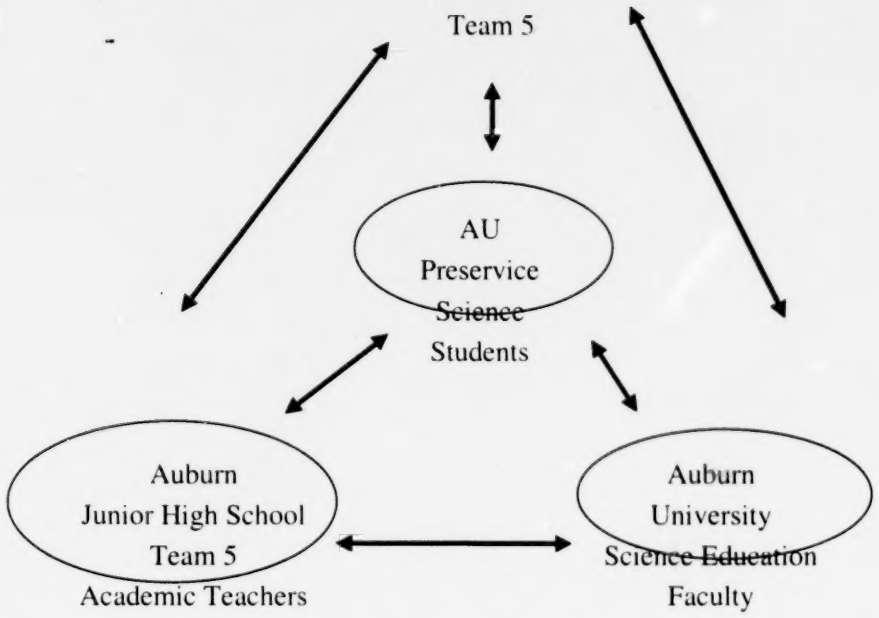

Figure 4

Phase II (Second Half of First Year)

Phase II (Figure 4)will be identical to Phase I except that we will add additional discipline areas to science education on the right side of the diagram, e.g. math, English, and social studies AU faculty and preservice students. Also additional faculty teams at AJHS will join the project. Preservice teachers will learn to negotiate subjects and time allocation with other team members at each level to insure goal achievement and smooth transition to visiting teaching teams.

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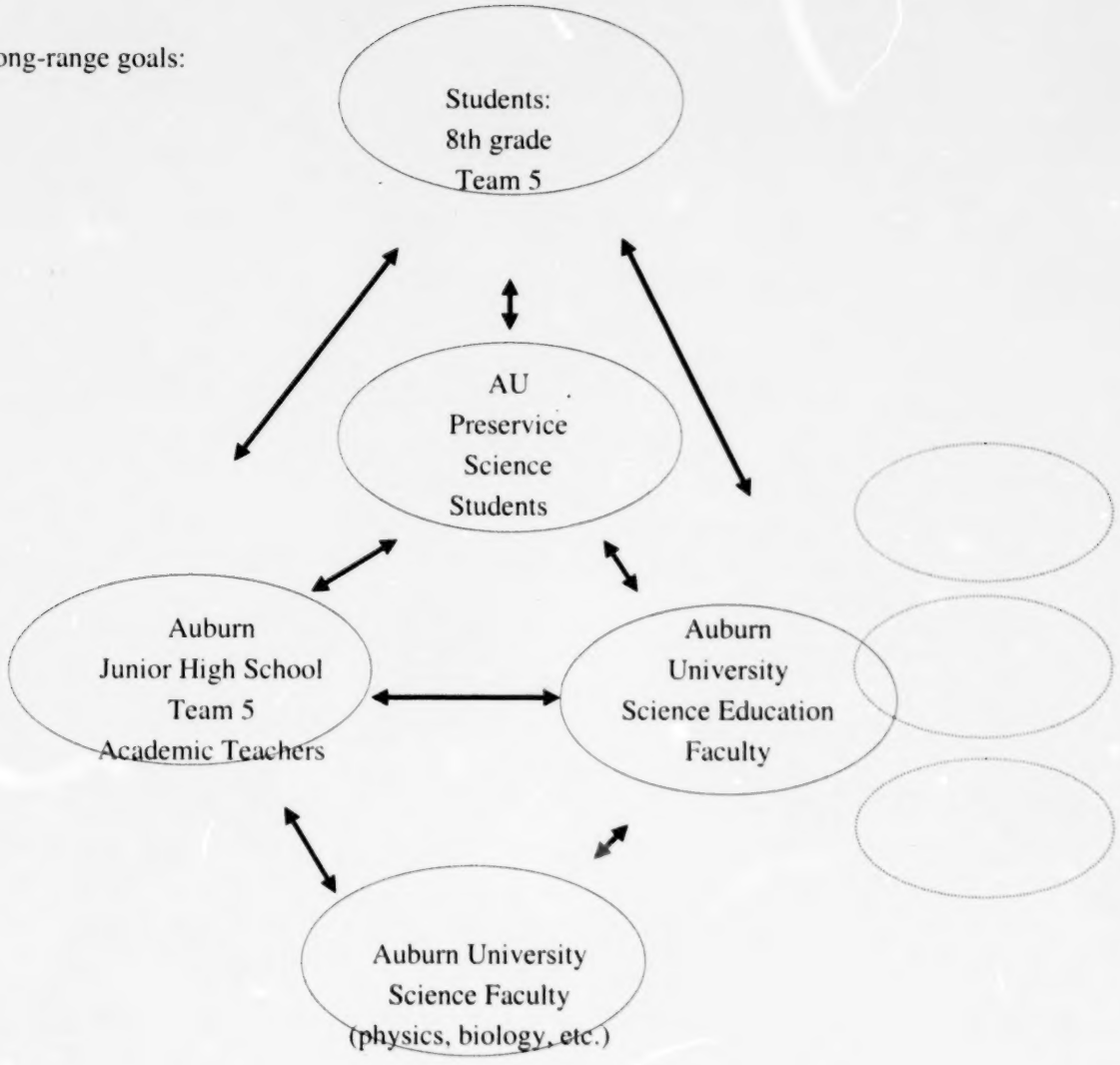
Long-range goals:



This second phase of our model will be used by other schools in the local area within three years.

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